January 8th 2008, A. Pany

Old turbulence parameters vs. new ones

Specifications:

schedule: stat16_4p5_2p1D0ln

clk: ASD 2e-15 @ 15 min, random walk + integrated random walk
zwd: Vienna turbulence
wn: 4 ps per station

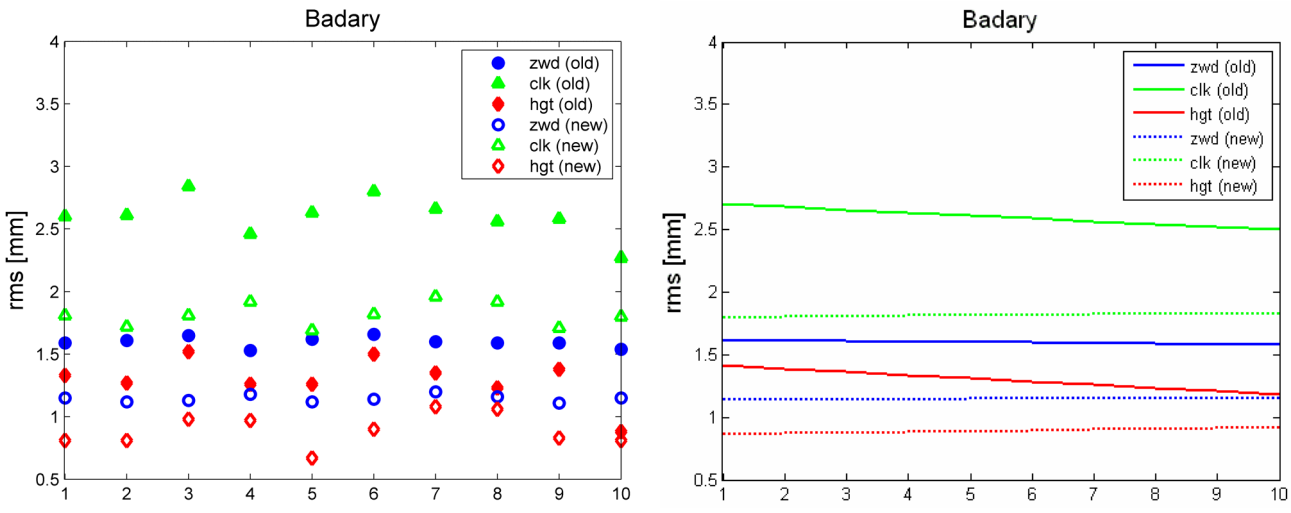
zwd: 6 min, 48 mm/h
grd: 6 min, 5 mm/h
clk: 1h, 54 mm/h

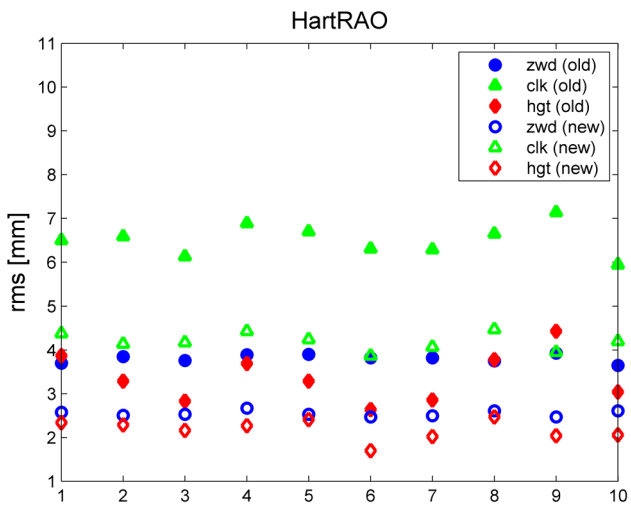
The usual procedure (of simulating EZWD, clock and wn for 25 days) was repeated 10 times for 4 stations. Each of the 10 datasets per station was analyzed with the PPP CLSM software as usual.

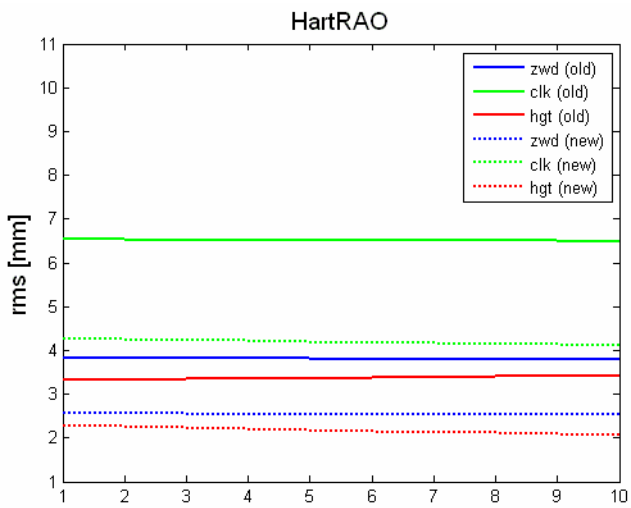
For each subset of 25 days, mean rms of zwd- and clk-residuals and rms of hgt residuals were computed. These values are presented in Figure 1. The plots on the left side show mean rms of zwd residuals (blue circles), mean rms of clk residuals (green triangles), and rms of hgt residuals (red diamonds) for simulations with the old Cn and H values (filled marker symbols) and with the new Cn and H values (non-filled marker symbols). The plots on the right show the corresponding regression lines (solid lines: old values, dotted lines: new values).

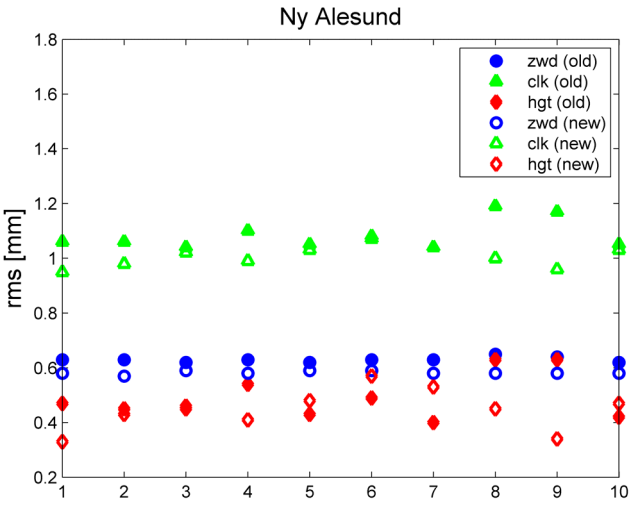
Figure 2 shows a bar plot of mean rms of zwd- and clk-residuals and rms of hgt residuals, where the values were computed over all 250 days.

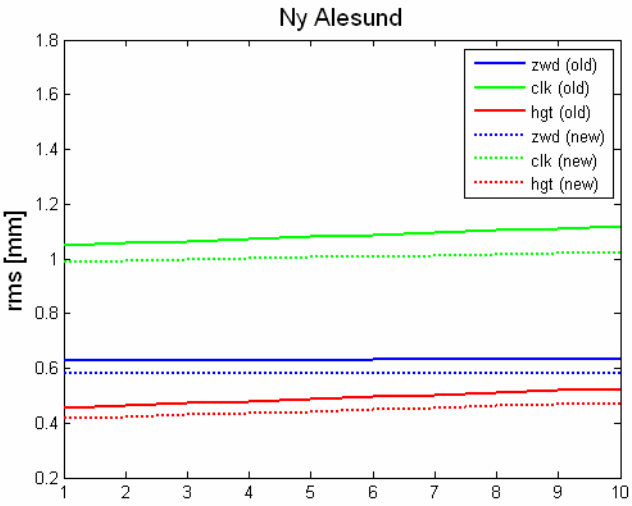
Figure 1: plots on the left show mean rms of zwd- (blue) and clk-residuals (green) and rms of hgt residuals (red) for simulations with old (filled marker symbols) and new (non-filled marker symbols) turbulence parameters; plots on the right show the corresponding regression lines (solid: old turbulence parameters, dashed: new turbulence parameters)

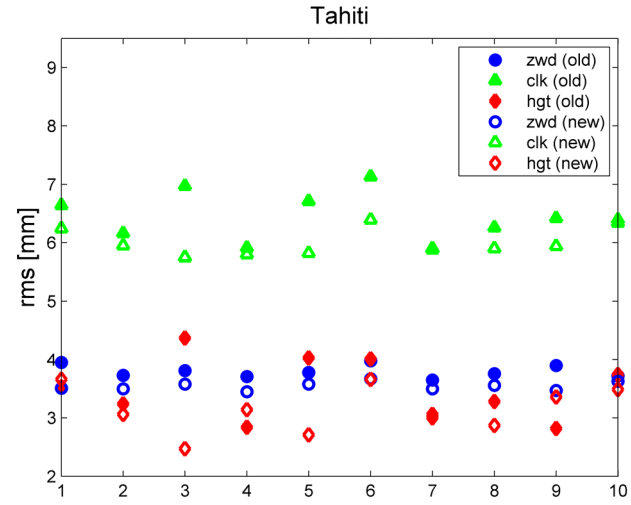


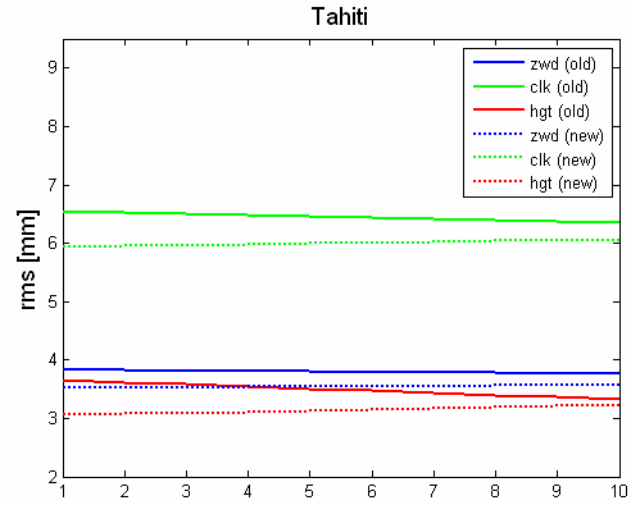

HartRAO
rms [mm]
zwd (old)
clk (old)
hgt (old)
zwd (new)
clk (new)
hgt (new)


HartRAO
rms [mm]
zwd (old)
clk (old)
hgt (old)
zwd (new)
clk (new)
hgt (new)


Ny Alesund
rms [mm]
zwd (old)
clk (old)
hgt (old)
zwd (new)
clk (new)
hgt (new)


Ny Alesund
rms [mm]
zwd (old)
clk (old)
hgt (old)
zwd (new)
clk (new)
hgt (new)


Tahiti
rms [mm]
zwd (old)
clk (old)
hgt (old)
zwd (new)
clk (new)
hgt (new)


Tahiti
rms [mm]
zwd (old)
clk (old)
hgt (old)
zwd (new)
clk (new)
hgt (new)

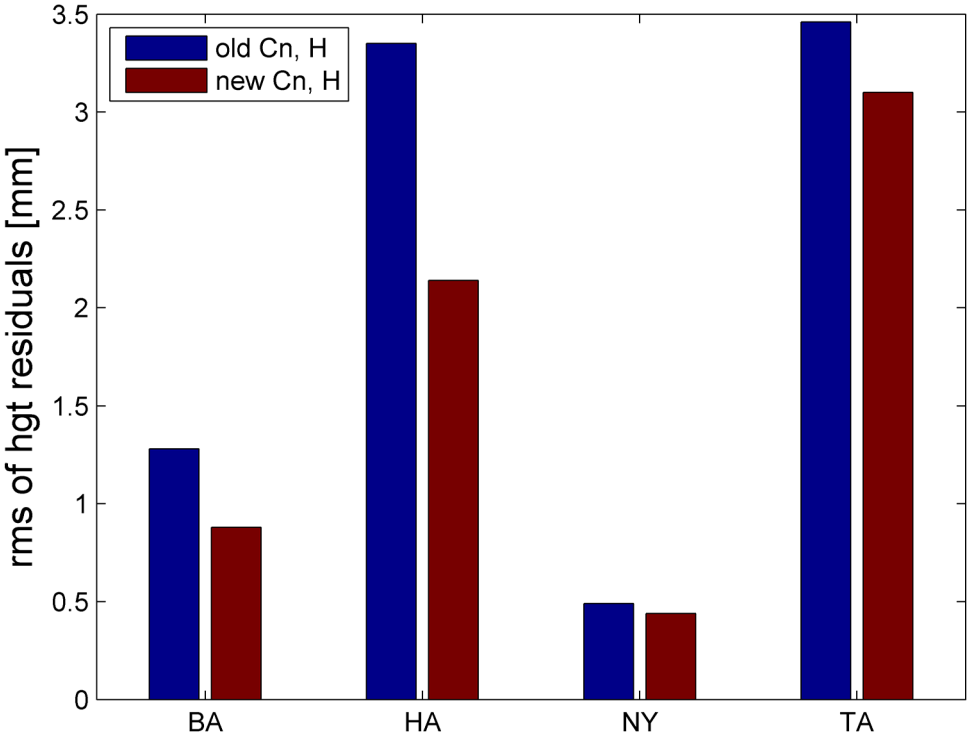


Figure 2: rms of hgt residuals computed over 250 days